



Time-Series Forecasting Model for Evaluating Emergency Care Units in Nigeria: A Methodological Assessment

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Abstract

Emergency care units (ECUs) in Nigeria face significant challenges related to resource allocation and clinical outcomes. The study employed an ARIMA (AutoRegressive Integrated Moving Average) model to forecast clinical outcomes over time. Uncertainty was assessed through robust standard errors. A notable proportion (35%) of patients were predicted to be readmitted within one month post-discharge, highlighting the need for improved patient follow-up systems. The ARIMA model provided a reliable forecast framework for monitoring and improving clinical outcomes in Nigerian ECUs. Implementing robust patient follow-up protocols is recommended to reduce readmission rates. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Nigerian, ARIMA, forecasting, time-series, evaluation, methodology, clinical outcomes

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